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Science and Technology for Tomorrow's Air and Space Force
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Success Story

DR. BENJAMIN ROCKWELL NAMED LASER INSTITUTE OF AMERICA FELLOW



The Laser Institute of America (LIA) recently selected Dr. Benjamin Rockwell, a senior research biophysicist with the Human Effectiveness Directorate, as a Fellow at the International Congress on the Applications of Lasers and Electro-Optics in Scottsdale, Arizona. Dr. Rockwell's selection as a Fellow strengthens the directorate's reputation as a world-class center for laser-tissue interaction research and as a world leader in determining the safety of laser threats.

The LIA is a professional membership society dedicated to promoting lasers, laser applications, and safety worldwide, serving the industrial, medical, research, and military communities. The LIA recognizes their membership, who make seminal contributions to the fields of laser applications and safety, with the distinction of Fellow.



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Accomplishment

Dr. Rockwell investigated laser damage to the retina, conducting groundbreaking experimentation on the nonlinear optical phenomena that are responsible for the lowest energies ever to damage retinal tissues. These nonlinear effects occur when ultrashort laser pulses (shorter in duration than one nanosecond) impinge the retina.

This research included the lowest single-pulse damage of the retina, measurement of the nonlinear optical properties of the eye, and determination of three new damage mechanisms of the retina from laser exposure. These damage mechanisms are important for determining safe exposure levels and weapons effectiveness, but may also help in developing new treatments of retinal diseases such as macular degeneration.

Background

Dr. Rockwell served for 3 years as a senior member of the LIA and was elected in 2001 to serve a 3-year term both on the board of directors and on the executive board. During his tenure at AFRL, Dr. Rockwell published a book chapter, 31 journal articles, and 72 proceedings articles. He served on many conference committees and has one patent.

Dr. Rockwell also serves as the Secretary of the American National Standards Institute's Z136 Committee, the national laser safety committee, and as US delegate to and on the Technical Area Group for laser bioeffects for the International Electrotechnical Commission. His research team defines the safe exposure levels for ultrashort laser pulses and the resulting protective requirements for personnel protection.

Human Effectiveness
Awards/Recognition

Additional information

To receive more information about this or other activities in the Air Force Research Laboratory, contact TECH CONNECT, AFRL/XPTC, (800) 203-6451 and you will be directed to the appropriate laboratory expert. (03-HE-12)